

## EXPERIMENTAL USE OF LEAST CHUB IN ORNAMENTAL PONDS TO CONTROL MOSQUITOS

Davis and Salt Lake County's  
2008

Utah Division of Wildlife Resources (UDWR) and the Mosquito Abatement Districts (MAD) are working cooperatively to assess whether least chub (*Iotichthys phlegthontis*), can be integrated into the mosquito abatement program as an alternative to the introduced western mosquitofish (*Gambusia affinis*). Davis and Salt Lake County MAD's and UDWR propose an experimental approach to evaluate the effectiveness of the least chub as an alternate for the western mosquitofish, as a biological mosquito control agent in ornamental ponds.

The western mosquitofish is native to much of the south-central United States and Mexico. It is not native to Utah, although it has been introduced to the state and it is now established in warm springs and ponds in many parts of Utah. The western mosquitofish feeds predominantly at the surface, where it eats insect larvae and small invertebrates. It also preys upon the eggs and young of fish and amphibians, often negatively impacting native species in areas where the mosquitofish becomes established.

The least chub is a small desert fish that occurs only in Utah. A decline in the abundance and distribution of least chub has been noted since the 1940's. In 1995, the US Fish and Wildlife Service determined that listing least chub as an endangered species was warranted and on September 29, 1995, proposed to list the species but was precluded due to higher priorities. A technical team was formed under the leadership of the Utah Division of Wildlife Resources and the Least Chub Conservation Agreement and Strategy was drafted to outline actions necessary to prevent listing under ESA. The commitments and conservation actions undertaken by signatories to the Conservation Agreement led the FWS to withdraw the listing proposal on July 29, 1999. Currently, least chub is classified as a Conservation Species (Tier I) by the State of Utah.

**Study Design:** Three mosquito abatement districts (Davis, Salt Lake and South Salt Lake) will pick 80 ornamental ponds to be part of this study.

The study design will:

- 1). Test the effect of the density of least chub for mosquito larvae control.
- 2). Test the control efficacy between least chub and western mosquitofish.
- 3). Test the ability of both species to control mosquito in small ponds versus larger ponds.
- 4). Test the tolerance level of both types of fish to lower or higher oxygen levels in the water as well as the ability of the species to avoid being taken in by the pumping mechanisms.

Upon completion of this experimental project, UDWR and the MAD will meet to discuss the results and the potential to integrate least chub into the mosquito abatement program on a permanent basis.